



# IDAHO DEPARTMENT OF HEALTH & WELFARE

## Bureau of Community and Environmental Health

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### Polycyclic Aromatic Hydrocarbons Fact Sheet

#### What are polycyclic aromatic hydrocarbons?

Polycyclic aromatic hydrocarbons (PAHs), also called Polynuclear Aromatic Hydrocarbons, PNA, Polyaromatic Hydrocarbons -- examples are acenaphthene, anthracene, benzo [a]pyrene, benzo[k]fluoranthene, fluorene, naphthalene, pyrene -- are a group of more than 100 different compounds that are made during the incomplete burning of organic substances. They usually occur as complex mixtures, not as single compounds. PAHs are found throughout the environment in the air, water, and soil.

#### How can I be exposed to PAHs?

PAHs can be formed naturally in the environment. However, human activities form PAHs in the air by burning organic substances and other chemical processes. The less efficient the burning process the more PAHs are released. A few PAHs are used in medicines, plastics, and pesticides, and others are contained in asphalt and tar products.

You may be exposed to these substances at home, outside, or at work. Normally, you will be exposed to a mixture of PAHs rather than an individual one. You are most likely to be exposed to PAH vapors or PAHs that are attached to dust and other particles in the air.

Sources include tobacco smoke, vehicle exhausts, asphalt roads, coal, coal tar, wildfires, agricultural burning, creosote or pentachlorophenol-treated wood products, wood burning, municipal and industrial waste incineration, and hazardous waste sites. You may be exposed to PAHs in soil near areas where coal, wood, gasoline, or other products have been burned. Soils near sites where wood-preserving or gas manufacturing is or was performed usually contain PAHs. PAHs have been found in some drinking water supplies in the United States. Improper disposal of wastes such as ash, tar, or creosote can contaminate the water with PAHs.

People are most often exposed to PAHs by inhaling tobacco smoke or eating foods containing PAHs. Barbecuing, smoking, or charring food over a fire greatly increases the amount of PAHs in food. Other foods that may contain low levels of PAHs include roasted coffee, roasted peanuts, refined vegetable oil, grains, vegetables, and fruits.

A variety of cosmetics and shampoos are made with coal tar and, therefore, contain PAHs. Mothballs are made of the PAH compound, naphthalene. People who work in industries where there is burning of organic compounds (coal, oil, gas, garbage, wood, cellulose, corn, etc.) or where they may inhale smoke from engine exhaust, fires, tobacco, roofing tar, and other petroleum products are the most likely to be exposed to PAHs.

In general, however, people with the higher risk of exposure are smokers, people who live or work with smokers, roofers, road builders, and people who live near major highways or industrial sources.

#### What are the health effects from exposure to PAHs?

Health effects related to PAHs depend on how much has entered your body, how long and how often you have been exposed, and how your individual body responds. You may not experience any health effects if you are exposed to PAHs. However, health effects from short-term exposure to large amounts of PAHs

include eye irritation, nausea, vomiting, diarrhea, and confusion. Long-term exposure to PAHs can cause cancer in humans and animals.

## **How can I reduce my exposure to PAHs?**

- Avoid exposure to tobacco smoke.
- Reduce your use of wood burning stoves and fireplaces.
- Decrease the amount of smoked and charbroiled foods you eat.
- Decrease the use of cosmetics and shampoos that contain coal tar.
- Avoid mothballs, moth flakes, and deodorant cakes that contain PAHs. Substitute with cedar chips or shavings.
- Wear protective clothing such as long-sleeved shirts, pants, and gloves when handling weed products treated with creosote, pentachlorophenol, or other PAH-based chemicals.
- Avoid commercial, automotive, and industrial sources of PAHs.

## **For more information**

The Bureau of Community and Environmental Health (BCEH), Idaho Division of Health, works with the Agency for Toxic Substances and Disease Registry to protect human health from dangerous substances in the environment. BEHS has a Program to inform and educate the citizens of Idaho about these substances at hazardous waste sites and the activities being conducted at these sites. This fact sheet has been created to assist you in understanding the potential health risks from exposure to polycyclic aromatic hydrocarbons. For more information, contact:

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